AMENDMENTS TO THE SPECIFICATION:

On page 1, before line 1, please insert the following heading:

"TITLE OF THE INVENTION"

On page 1, between lines 1 and 2, please insert the following heading:

"BACKGROUND OF THE INVENTION

(1) Field of the Invention"

On page 1, between lines 3 and 4, please insert the following heading:

"(2) Description of Related Art"

On page 1, lines 18 to page 2, line 19, please amend the following paragraphs:

"Regarding FSTN displays, a schematic drawing of an example of such a display is disclosed in FIG. 1. This configuration essentially comprises a liquid crystal layer 2, being sandwiched between a front and a back substrate 3 and 4. On a front side thereof, a front polarizer 7 and a compensation film 16 is arranged, whereby the film is sandwiched between the front substrate 3 and the front polarizer 7. On a backside thereof, a back polarizer 12 and a transflector 17 is arranged, whereby the back polarizer 12 is sandwiched between the back substrate 4 and the transflector 17. However, this construction has a couple of disadvantages in the reflective mode. First, the display experiences parallax, which results from the position of the transflector, i.e. behind the back polarizer. Secondly, the display suffers from relatively low brightness in the reflective mode, resulting from absorption of light by the polarizers, due to the fact that light in this construction must pass a polarizer four times before reaching an observer of the display, and every passage through a polarizer results in a loss of brightness due to absorption.

In order to increase the brightness in the reflective mode, super twisted nematic displays utilizing a so-called internal, in-cell reflector (transflector) have been developed. Examples of such displays are disclosed in FIG. 2 (internal reflector 5) and FIG. 3 (internal transflector 13). In both embodiments, the reflector/transflector is positioned in the liquid crystal cell, i.e. between

the substrates 3 and 4, and hence the number of passages through a polarizer in the reflective mode will be reduced.

Super twisted nematic liquid crystal displays making use of an internal transflector or reflector may essentially be of one of two types, normally white (NW) or normally black (NB). Both types make use of a front optical stack 9, positioned on an observer side of the liquid crystal cell, the front optical stack comprising a front polarizer 7 and one or two compensation films 16 and usually a light scattering film 6 located between the front substrate 3 and the compensation film or films 16. If an internal transflector 13 is used (see FIG. 3), the display further comprises a rear optical stack 10, comprising a polarizer 12 and one or two compensation films 11, the polarizer 12 and the compensation films 11 together constituting a so-called circular polarizer. For both NW and NB displays, the retardation and the twist angle of the twisted nematic liquid crystal layer commonly used in STN LCDs with internal reflector or transflector are typically 760-860 mn and 240°-270°, respectively."

On page 2, line 29, please insert the following heading:

"BRIEF SUMMARY OF THE INVENTION"

On page 2, line 30 to page 3, line 3, please amend the following paragraph:

"The above and other objects are at least partly achieved in accordance with the invention by a normally white super-twist nematic liquid crystal display device for multiplex operation as described by way of introduction, which further comprises a liquid crystal cell essentially comprising a liquid crystal layer, being sandwiched between a front and a rear substrate, an at least partly reflective film, arranged in proximity to said rear substrate, and a front optical stack, arranged on a viewer's side of the front substrate, the stack comprising one or more optical films, the front optical stack consisting essentially of a polarizer and an ~~optional~~ optical light scattering film."

On page 3, line 24, please insert the following heading:

"BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS"

On page 4, line 21, please insert the following heading:

"DETAILED DESCRIPTION OF THE INVENTION

On page 4, line 22 to page 6, line 26, please amend the following paragraphs:

"This invention is based on the realization that a normally white super twisted nematic liquid crystal display (NW STN LCD) having an in-cell reflector/transflector (or a near-cell reflector/transflector as will be described below) and fulfilling the objects of the invention stated above, may be obtained by using a front optical stack consisting solely of a polarizer and an ~~optional~~ optical light scattering film. Hence, compensation films need not be included in the front optical stack, which is an improvement as compared to the prior art. Consequently, the stack may be made thinner, and the manufacturing process may be simplified.

A first embodiment of this invention is disclosed in FIG. 4. This device 1 comprises a super twisted nematic liquid crystal layer 2 being arranged between a front and a back substrate 3, 4. The liquid crystal layer is arranged to be controlled by means of an electrode structure (not shown) on said front and back substrate. Furthermore, the device comprises an in-cell reflector 5, being arranged between the liquid crystal layer 2 and the back substrate 4. Together, the front and back substrate 3,4, the liquid crystal layer 2 and the in-cell reflector 5 form a liquid crystal cell ~~8~~. On an observer's side of the liquid crystal cell ~~8~~, a front optical stack 9 is arranged, comprising a front polarizer 7 and an ~~optional~~ optical light scattering film 6. It shall be noted that in this context the term light scattering film as used in this application shall be construed as a member scattering light passing through it, and said member may hence comprise a film formed by one or more individually formed layers. The light scattering film 6 is sandwiched between the front polarizer 7 and the front substrate 3. The above-mentioned liquid crystal layer 2 has a twist angle of about 195-270°, preferably about 240-270°, in order to be suitable for multiplex operation. Furthermore, the liquid crystal layer 2 is chosen to have a retardation of about 500-750 nm. It shall be noted that this retardation interval is lower than for prior art FSTN and conventional STN LCDs, which have a retardation within the interval 760-860 nm. Hence, the inventive display may be referred to as a low retardation LCD. By using a low retardation liquid crystal layer together with the proposed front optical stack, the use of compensation films may be avoided. Thereby, the manufacturing cost of the display can be reduced, and at the same time,

the thickness of the display can be reduced. In the above-described embodiment, an in-cell reflector 5 is used. However, the invention may also be implemented in liquid crystal displays utilizing an external reflector, such as a near-cell reflector for example being fastened onto the external side of the rear substrate 4. A second embodiment of this invention, including an external reflector, is disclosed in FIG. 6. This embodiment is similar to the one disclosed in FIG. 4, with the exception that the in-cell reflector 5 of FIG. 4 is excluded, and instead an external reflector 14 is arranged, the reflector being formed on an external side of the rear substrate 4.

The present invention may also be realized as a transflective display. A third embodiment of the invention, illustrating this, is shown in FIG. 5. This device 1 comprises a super twisted nematic liquid crystal layer 2 being arranged between a front and a back substrate 3, 4. The liquid crystal layer is arranged to be controlled by means of an electrode structure (not shown) on said front and back substrate. Furthermore, the device comprises an in-cell transflector 13, being arranged between the liquid crystal layer 2 and the back substrate 4. Together, the front and back substrate 3, 4, the liquid crystal layer 2 and the in-cell transflector 13 form a liquid crystal cell ~~8~~. On an observer's side of the liquid crystal cell ~~8~~, a front optical stack ~~9~~ is arranged, comprising a front polarizer 7 and an ~~optional~~ optical light scattering film 6. It is noted in this context that the term light scattering film as used in this application shall be construed as a member scattering light passing through it, and said members may hence comprise a film formed by one or more individually formed layers. The light scattering film 6 is sandwiched between the front polarizer 7 and the front substrate 3. Moreover, on a rear side of the liquid crystal cell ~~8~~, a rear optical stack ~~8~~ is arranged, comprising a rear polarizer 12 and a compensation film 11, sandwiched between the rear polarizer 12 and the back substrate. Also in this case, the above-mentioned liquid crystal layer 2 has a twist angle of about 195-270°, preferably about 240-270°, in order to be suitable for multiplex operation. Furthermore, the liquid crystal layer 2 is chosen to have a retardation of about 500-750 nm. It shall be noted that this retardation interval is lower than for prior art FSTN and conventional STN LCDs, which have a retardation within the range of 760-860 nm. Hence, the inventive display may be referred to as a low retardation LCD. By using a low retardation liquid crystal layer together with the proposed front optical stack, the use of compensation films may be avoided. Thereby, the manufacturing cost of the display can be reduced, and at the same time, the thickness of the display can also be reduced. In the same way as mentioned above, the invention may also be implemented in liquid crystal displays utilizing

an external transflector, such as a near-cell transflector for example being fastened onto the external side of the rear substrate 4. A fourth embodiment of this invention, including an external transflector, is disclosed in FIG. 7. This embodiment is similar to the one disclosed in FIG. 5, with the exception that the in-cell transflector 13 of FIG. 5 is excluded, and instead an external transflector ~~15~~ 13 is arranged, the transflector 13 being sandwiched between the rear substrate 4 and the compensation film 11. In both cases, the external reflector/transflector may for example be attached to the rear substrate 4 by means of gluing. In both transflective embodiments disclosed in FIGS. 5 and 7, a compensation film 11 is included in the rear optical stack ~~10~~. The transmission-voltage curve for a transflective LRE STN LCD, having a retardation of 650 nm and a front polarizer angle $\alpha_{fp}=60°$ (see FIG. 9), is disclosed in FIG. 12 while the optical configuration of this display is disclosed in FIG. 13. In this case, the compensation film 11 is constituted by a 140 nm quarter wave plate."

After page 10, please insert new page:

"ABSTRACT

This invention relates to a normally white super-twist nematic liquid crystal display device for multiplex operation, comprising a liquid crystal cell essentially comprising a liquid crystal layer, being sandwiched between a front and a rear substrate, an at least partly reflective film, arranged in proximity to said rear substrate, and a front optical stack, arranged on a viewer's side of the front substrate, the stack comprising one or more optical films, wherein the front optical stack consists solely of a polarizer and an optical light scattering film."